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A profile is presented for a high school designed to house a closed circuit television system as a basic part of the instructional program. The description of the educational bases of the design emphasizes why the school was designed as it was and how it was designed and built. Schematics and photographs are included along with an evaluation of the school. (FS)

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Profiles of Significant Schools

NORTH HAGERSTOWN HIGH SCHOOL

HAGERSTOWN, MARYLAND

Prepared by
Evans Clinchy
Editorial Associate

February, 1960

Educational Facilities Laboratories, Inc.
477 Madison Avenue, New York 22, New York

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Profiles of Significant Schools

General Introduction

This is one of a series of "Profiles of Significant Schools." The series is designed to acquaint school administrators and members of boards of education with some of the latest developments in school planning and design. What makes a school significant? It may be an unusual solution to housing the school's educational program which is itself unusual. It may be an architectural solution of great promise. Or it may be an illustration of one point of view on an architectural issue, e.g. air conditioning, portability, subdivisibility.

Since a school cannot be fully understood apart from the program it houses, these profiles will generally describe briefly the educational bases of the design of the buildings. The profiles will attempt to show two things: first, why the school was designed as it was; and second, how it was designed and built. If possible, an evaluation of the school in relation to the program for which it was planned will be included.

These are profiles of individual schools, built in individual communities, to house individual programs. They may not serve ideally in other settings for other programs. However, they represent - in EFL's eyes - significant approaches to schoolhousing. We hope they will stimulate new and better schools.

The series of profiles is itself an experiment and we would appreciate your reactions to it as well as suggestions for making future profiles more useful.

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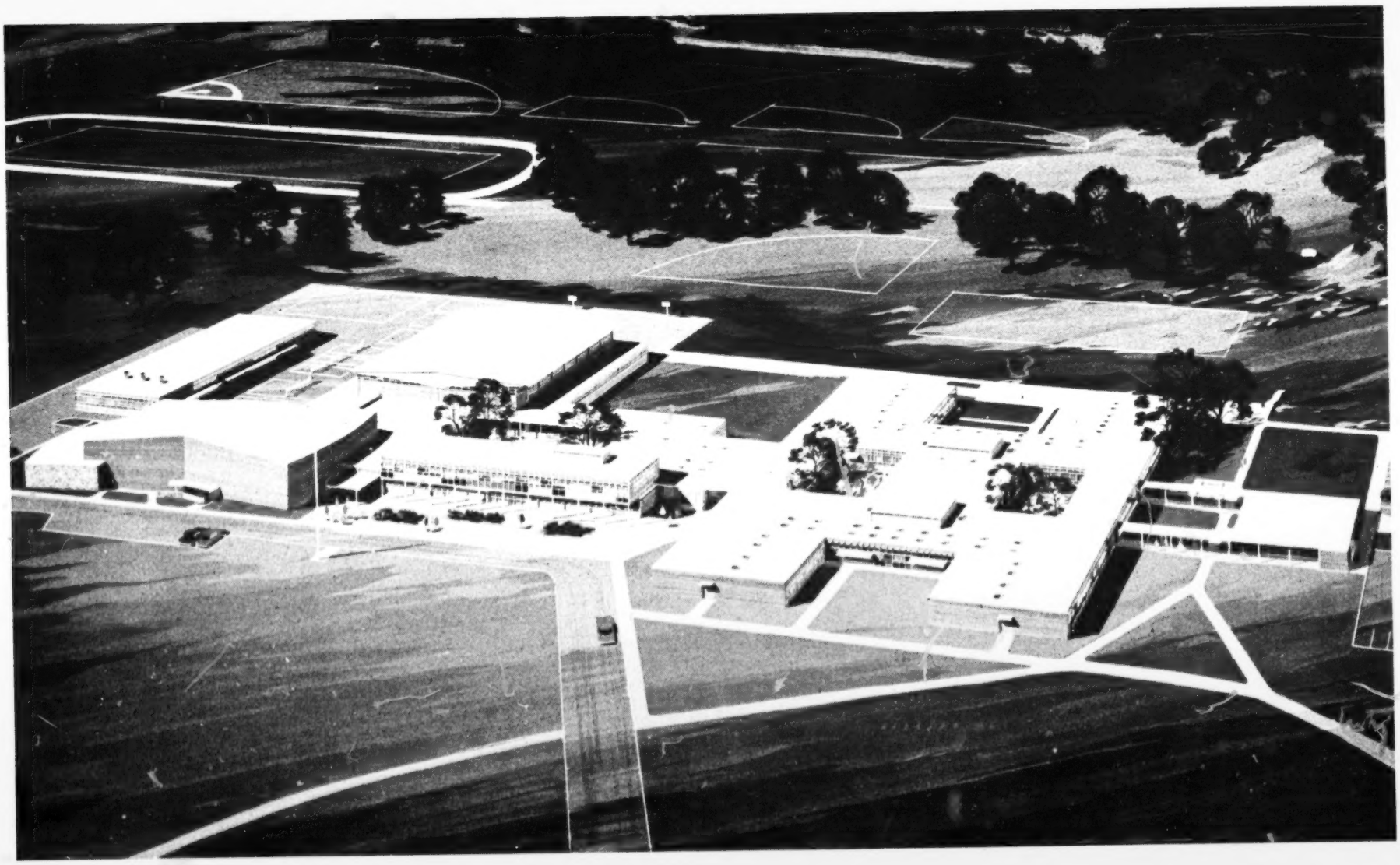
North Hagerstown High School, Hagerstown, Maryland

Size of enrollment:	1,800 students
Grades:	9 - 12
Architects:	McLeod & Ferrara
Educational Consultants:	Engelhardt, Engelhardt, Leggett, and Cornell
Superintendent:	William M. Brish
Assistant Superintendent:	William C. Diehl
Director of Instruction:	William L. Donaldson
Supervisor of Planning and Construction:	Delbert G. Summerville
Principal:	Herbert C. Logsdon



Architects' rendering of North Hagerstown High School

Washington County is a community of mixed manufacturing, business, and farming pursuits in northwest Maryland.

The population, now approximately 86,000, is still growing at a moderate rate with 60,000 concentrated in metropolitan Hagerstown.

The present school population of Washington County is about 18,000. Perhaps because of the large percentage of farming and manufacturing families, the interest in sending students to college is not high. Only about 30 per cent of the County's high school graduates continue their education. This average is higher at North Hagerstown High School than elsewhere in the County; about 50 per cent of the graduates go on to college, about 33 per cent to four-year liberal arts colleges and 17 per cent to other colleges.

Television

The first order of business in any discussion of a school in Washington County is educational television.

In 1956 the first substantially financed, system-wide exploration of television in the nation's schools was put into operation here. At the beginning of the 1959-60 school year all but 12 of the County's 49 schools were hooked into the closed-circuit network.

This five-year experiment is now in its fourth year. No final judgment on the effectiveness of the program or its ultimate form has been made, and as yet no one is making pronouncements on what other school systems should or should not do about classroom television. *

But matters have progressed far enough so that no school in Washington County can exclude television from the planning process. This was particularly true of North Hagerstown High School, which opened in September, 1958. It was the first high school in the United States designed to house a closed-circuit television system as a basic part of the instructional program.

* A more detailed description and analysis of the Hagerstown project, Teaching in Washington County 1958 - 1959, may be obtained from The Board of Education of Washington County, Hagerstown, Maryland.

Television presented the architects and educators with two main problems:

1. No one knew the best way to operate classroom television or what kinds of equipment and opportunities advancing electronic technology would make possible. No one knew, therefore, what type of housing should be created for this dramatic experiment.

   a. The closed-circuit programs would come into the school during the first years over standard 21-inch receivers often stationed in conventional classrooms. But it had to be assumed that better devices were in the offing and that the school would have to accommodate them, too.

   b. No one was sure where the sets should be placed, how movable they should be or how often they should be moved, where the power was going to come from, or how to dim out the room for adequate reception.

   c. There was also the possibility that classroom television might be a failure. The architects had to make sure that their planning for television did not create a school which would be unusable as a more conventional high school.

2. One of the aims of the television experiment was to make better use of the teachers' time and abilities. One way to do this was to group as many as three classes together under one teacher for television, thus freeing two teachers for planning or conference work during that period. The architects had to provide spaces in which 75 or more students could be quickly gathered and just as quickly dispersed after class ended.

Other Educational Aims

In addition to the special problems created by television, the Washington County educators and school consultants had other problems to solve:

1. How to house 1,800 students - far too many to pack together in one school, unsorted except by arbitrary division into conventional classes. The student should feel that his life centers primarily around a small, self-contained area where communication between students and teachers is easier.

2. How to organize the teachers - instead of being restricted to rigid departmental units, teachers should be encouraged to cut across subject lines.

3. How to organize the administration - a decentralized setup with authority spread out from headquarters appeared desirable.

4. How to arrange the classrooms - the ordinary box-like arrangement of high school classrooms was too formal and rigid to provide the best atmosphere for learning. Students should not be confined all day in a series of standard size, cinder block cages, released only for feeding and exercise.

5. How to avoid overcrowded corridors and expedite the flow of students between different parts of the school.

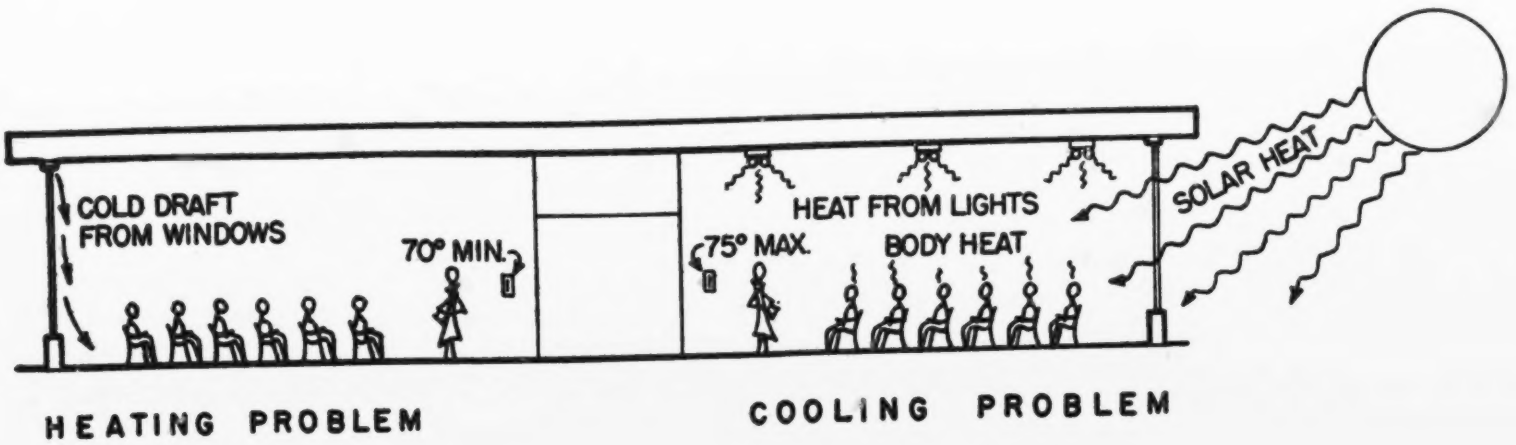
6. How to avoid sharp distinctions between academic and vocational subjects - except for the problem of noise, vocational faciliites should not be placed off in some easily neglected limbo.

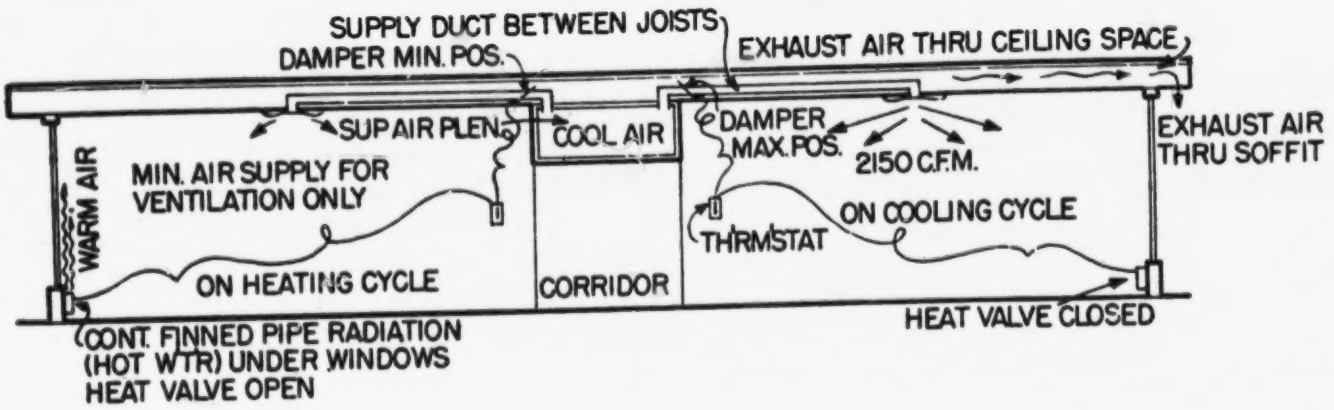
The School

The primary demand the architects had to meet was adaptability - a high school building which would be prepared for whatever changes might eventually become necessary. With both the television program and high school education in general in a state of change, an immutable building would have been foolish.

The first step in the planning of North Hagerstown High School was to make sure that the interior of the building could be altered. There are no load-bearing walls inside the high school. The roof

is supported by the building's steel frame. The heating system is placed in the exterior walls. The ventilating system, the stepped-up 485 volt electrical system, and the coaxial television cables are placed in the ceiling.





THE SOLUTION

These mechanical necessities are independent of the interior wall arrangements. The actual ceiling is made of removable metal pans. The wiring is so arranged that if an outlet for a television set is needed in any particular place the pan above that place is removed, a connecting wire strung through the steel roof frame, and the pan replaced. There is the outlet, wherever and whenever needed. It is possible to rearrange the inside of the building to conform with almost any educational program at a reasonable cost.

The Layout

The school is broken up into 6 units spread over 3.7 acres of the 66-acre site. See center spread.

The Big H

The academic section of the school is concentrated in or near the large H-shaped section.

This arrangement contributes towards the solution of many of North Hagerstown's problems.

The H shape makes it possible to house each of the school's four grades in a separate wing, creating four small schools within the larger school.

Each of these little schools has its own classrooms, its own faculty, its own administrative coordinator, and its own social life. Some facilities, such as the gym, the auditorium, the shops, and the library, are shared by the whole school.

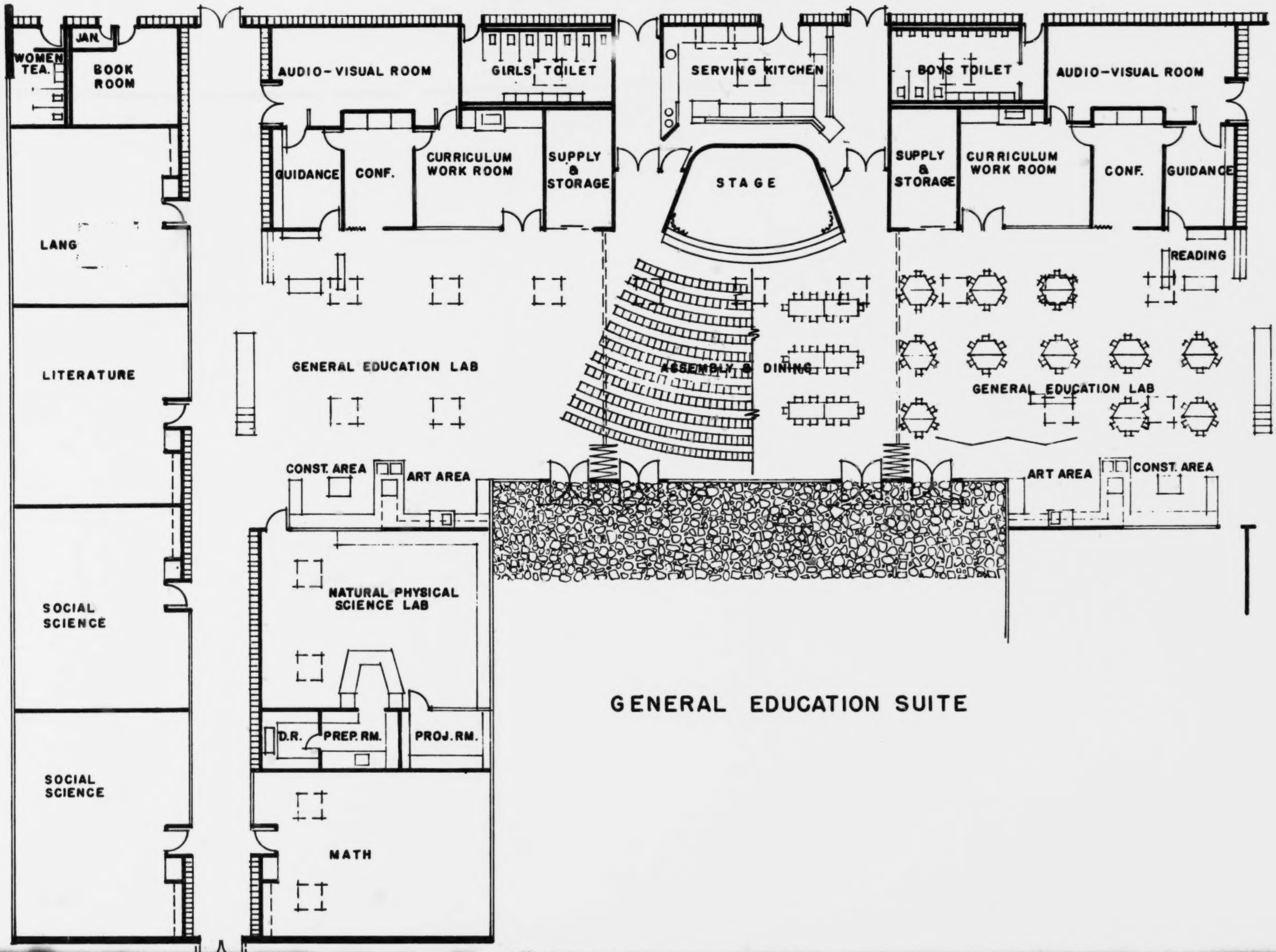
Each school handles most of its own administrative, disciplinary, academic, and guidance problems. The students receive personal attention. The teachers have an opportunity to work together, exchange ideas, plan the school program, and venture increasingly across subject boundaries in their academic work.

General Education Spaces

The H shape of the academic section is further exploited by the general education areas.

Each little school has its own general education space and each pair of spaces has a dining and assembly space between. Because the central area is separated from the general education spaces only by folding, sound-resistant partitions, when the partitions are open, the three spaces become one large cafeteria or assembly hall. The backstage area of the center section houses facilities for serving food which is carted in from the central kitchen. The students do not have to crowd into a single cafeteria.

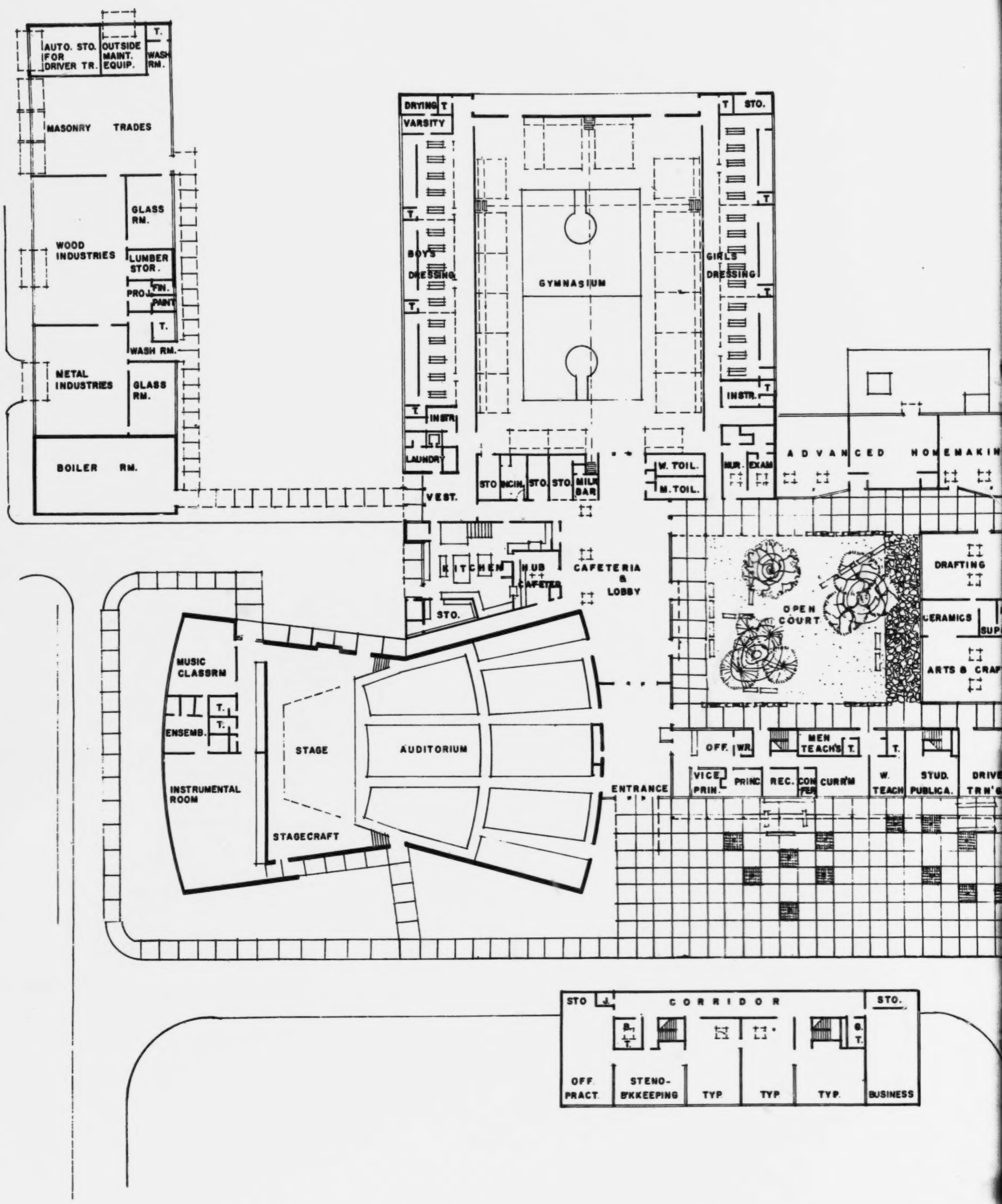
WORKSHOP CENTER



GENERAL EDUCATION SUITE

When the partitions are closed, the general education spaces operate as part of their respective schools. The central area becomes a large group classroom suitable for lectures, the staging of plays, panel discussions, or the viewing of television by a large group.

Television, dining, and varied activities in the general education area.


AUTO. STO. FOR DRIVER TR.
OUTSIDE MAINT. EQUIP.
T.
WASH RM.
MASONRY TRADES
GLASS RM.
WOOD INDUSTRIES
LUMBER STOR.
PROJ.
FIN.
PAINT
T.
WASH RM.
METAL INDUSTRIES
GLASS RM.
BOILER RM.
DRYING
T
VARSITY
BOYS DRESSING
GYMNASIUM
GIRLS DRESSING
STO.
INSTR.
LAUNDRY
VEST.
STO
INCIN.
STO.
STO.
MILK BAR
W. TOIL.
M. TOIL.
MUR.
EXAM
ADVANCED HOMEMAKIN
KITCHEN
HUB CAFETER
CAFETERIA & LOBBY
STO.
OPEN COURT
DRAFTING
CERAMICS
SUP
ARTS & CRAF
MUSIC CLASSRM
ENSEMB.
INSTRUMENTAL ROOM
STAGE
AUDITORIUM
STAGECRAFT
ENTRANCE
OFF.
WR.
MEN TEACH'S
VICE PRIN.
PRINC.
REC.
CONFER
CURRM
W. TEACH
STUD. PUBLICA.
DRIVE TRN'G
STO
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OFF. PRACT.
STENO-BKKEEPING
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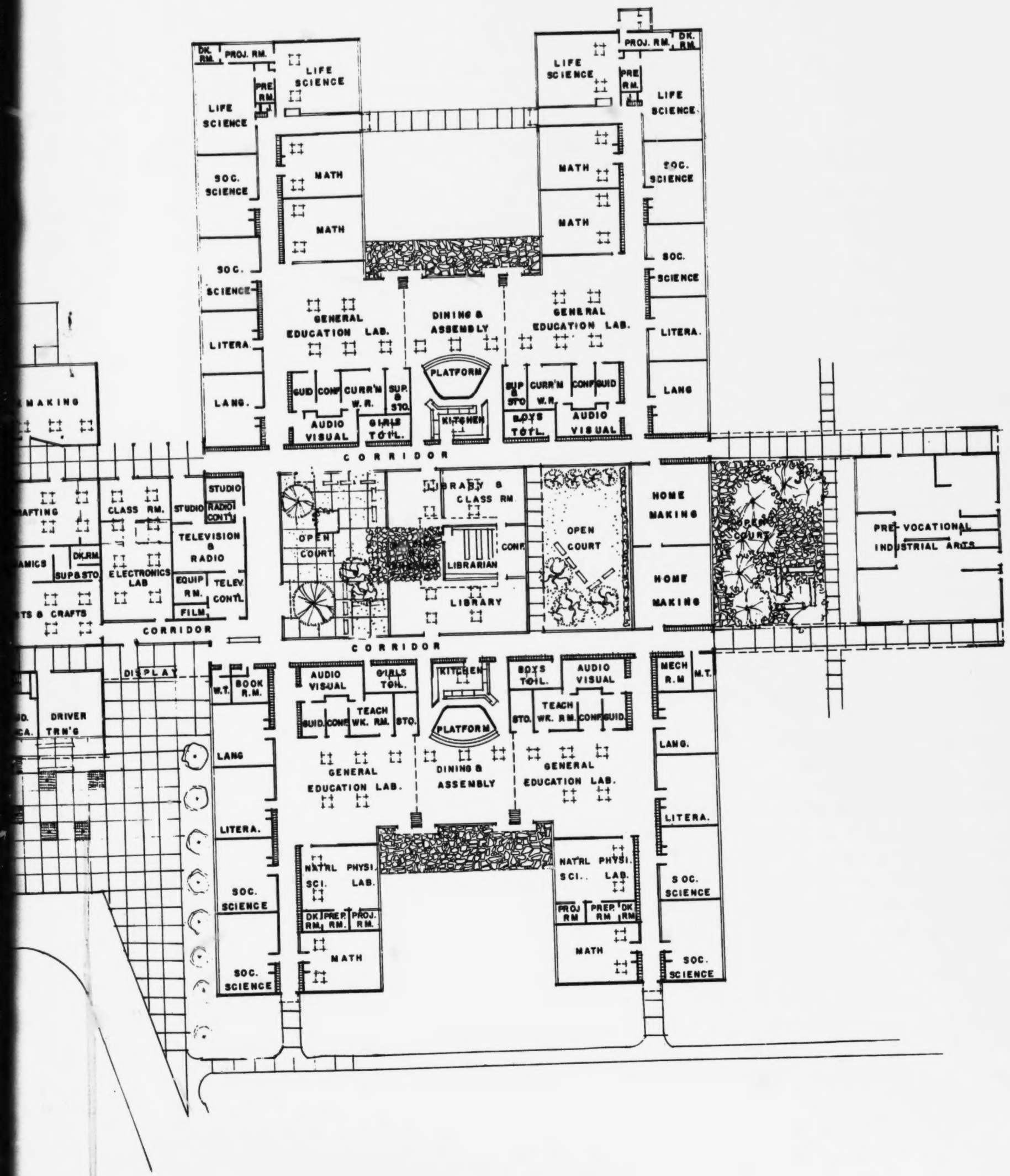
BUSINESS


DK. RM.
PROJ. RM.
LIFE SCIENCE
PRE RM.
SOC. SCIENCE
MATH
LITERA.
LANG.
GENERAL EDUCATION LAB.
DINING & ASSEMBLY
PLATFORM
KITCHEN
GUID
CONF
CURR'M W. R.
SUP. & STO.
AUDIO VISUAL
GIRLS TOIL.
BOYS TOIL.
CORRIDOR
STUDIO
RADIO CONT'L
CLASS RM.
TELEVISION & RADIO
ELECTRONICS LAB
EQUIP RM.
TELEV. CONT'L
FILM
DK.RM.
SUP&STO.
OPEN COURT
LIBRARY & CLASS RM
LIBRARIAN
CONF.
HOME MAKING
PRE-VOCATIONAL INDUSTRIAL ARTS
DISPLAY
DRIVER TRN'G
W.T.
BOOK R.M.
TEACH WK. RM.
STO.
MECH R.M
M.T.
NATRL SCI.
PHYSI. LAB.
PREP RM.
PROJ RM

For instance, 65 of the 75 students in one section of 11th grade United States history are brought together each day in one of the central areas for their television lesson. The remaining 10 students, who proved in a test at the beginning of the year that they already knew the material, form an advanced, seminar group. These students move ahead of the regular group and have their own project work and panel discussions. Sometimes they watch television; more often they do not.

The 65 students in the regular group watch a 25 to 30 minute television lesson in the center room. The students sit in groups around tables and take notes on the lesson given to them over three sets mounted on the stage. The classroom teacher monitors the class and privately answers any questions the students may have.

When the television lesson is finished, the classroom teacher takes over for a follow-up lesson. This can involve testing, recitation by students, or a panel discussion.

The general education spaces, with or without the central area are put to a number of uses besides television. There is room available for seminars and conferences with teachers (and conferences between parents and teachers), group testing and counseling (some of which is done by television), small school assemblies, banquets, dances, displays, and faculty and Parent Teacher Association meetings. The stage can be used for plays, panel discussions, films, and demonstrations.

Opening the Cages

These spaces also help solve the problem of the cinder block cages. The students are free to use the general education areas for their own purposes - relaxing between classes or after school, individual study, project work on maps, charts, stage scenery, or posters, club meetings, and research work. These areas are also used for study groups, many of which operate without teacher supervision.

Students are given a further sense of openness and freedom by the frequent use of glass panels instead of walls. Class activity and displays of class work can be seen by students and teachers passing outside the classrooms, and students in the rooms do not feel shut off from the life of the school around them.

Glass panels creating openness and
giving a view of classroom activities.

Vocational students are not restricted to a separate part of the building. The home making department, the drafting room, rooms for ceramics and arts and crafts, and the electronics lab (where some of the school system's television sets are repaired) are all located in areas near the center of the H. There are also rooms which are planned as radio and television studios.

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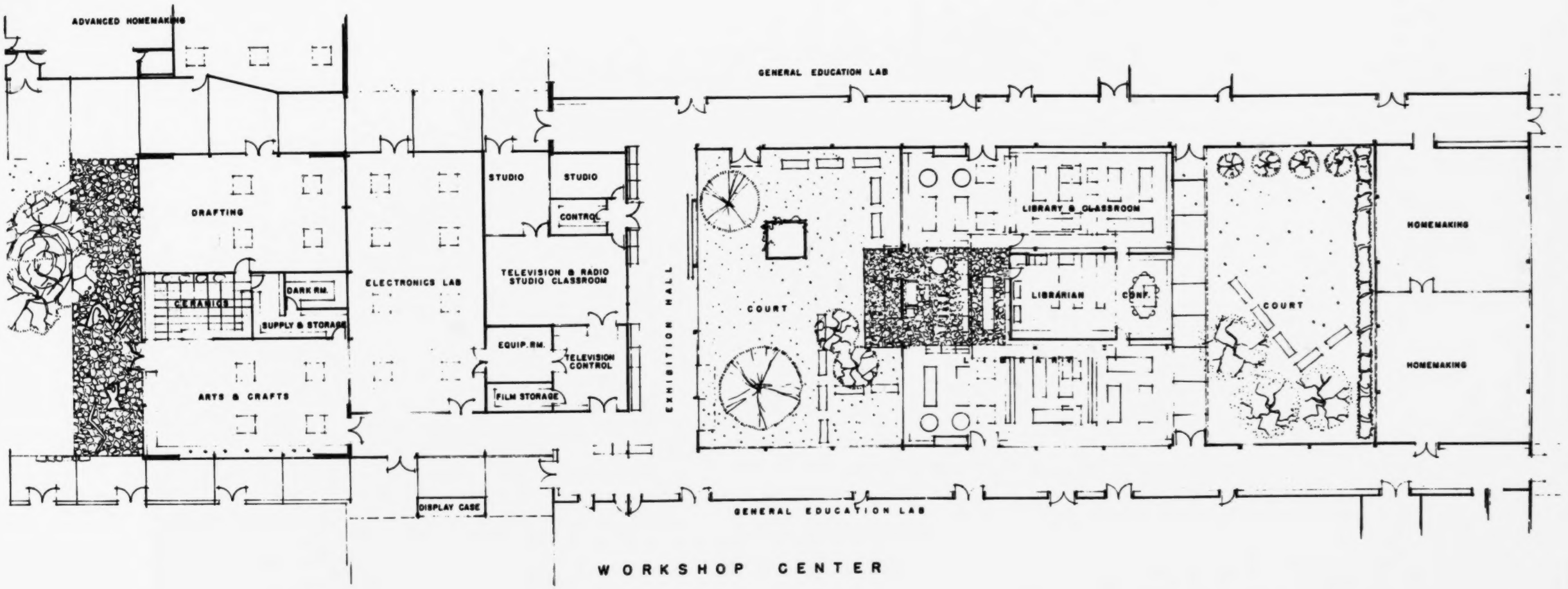

WORKSHOP CENTER

Only those activities involving loud noises are set apart. The music rooms are behind the imposing and acoustically superb auditorium. Rooms for masonry, the wood and metal industries, and other workshop activities are in a separate wing; and commercial subjects are taught in rooms on the second floor of the administrative area.

The library is in the center of the academic H, set off from the workshop areas by two courtyards. In addition to space for books and periodicals, the library contains a classroom for library instruction and a conference room for small groups or seminars. This central library services small reading areas in the general education area by means of book carts.

Pre-Vocational Industrial Arts

A separate section of the school, in some respects a continuation of the workshop area, is devoted to a special industrial arts program. This is primarily aimed at 9th grade boys who are preparing to enter the more complex building trades program in the 10th, 11th, and 12th grades. Here the vocational students are introduced to tools and basic machines. But this area is also used by those vocational sophomores who are not engaged at the moment in the building trades program and by academic students who might be working on special projects requiring complicated shop work. Any use of this vocational area by academic students is normally done on an elective or purely voluntary basis.

What the Students Think

About 15 of North Hagerstown's students - not exactly a statistically reliable sample - were asked about their reactions to the school.

The response to the little school plan was uniformly warm, especially from the seniors, juniors, and sophomores who had attended older high schools before entering North Hagerstown. They felt that the administration of this school was much better than it had been in schools they previously attended. The administrators and guidance counselors are far more available to and interested in them.

Since the schools are not planned as houses complete with house spirit and interhouse competitions, no student had any special emotional attachment to his little school. The students responded favorably to the decentralization of their school lives, to the open, informal arrangement of space, and to the general attractiveness of the buildings. They even agreed with the administrators that discipline was not so much a problem in this school as it had been in the older, more conventional schools.

The Cost of North Hagerstown

The buildings that make up this high school cost Washington County $2,872,195, not including the site and its development or equipment. Thus the buildings alone cost $17.79 per square foot or

$1,596 per pupil at the school's load of 1,800 students. The cost of the finished school, including site, site development, and conventional school equipment was $3,393,100, thus bringing the cost per square foot to $21.02, and the final cost per pupil to $1,885. These figures include the cost of special construction to accommodate television but do not include the cost of any of the television equipment, which was estimated at $300,000.

The television equipment was provided for the entire closed-circuit experiment by the Electronics Industry Association, a trade group which has contributed greatly to the Washington County television project. Support for the instructional and teacher training aspects of the project has come from the Fund for the Advancement of Education.

Whether the average school system can afford a set-up comparable to this one is still an open question. One fact to contemplate is this: In Washington County, four special teachers in music, art, and science handle by television work which would require 33 teachers traveling about the school system to provide enrichment in these subjects. If the system could find the extra 29 teachers, which is doubtful, it would cost an additional $150,000 every year in salaries, or $1,500,000 in ten years.

General Contract

Bond	$ 31,580.00
Temporary Structures	7,500.00
Surveys	2,500.00
Utilities	2,800.00
Plant & Equipment	8,500.00
Cut & Fill	192,500.00
Excavation (Hand)	17,500.00
Backfill	8,500.00
Drain Tile	204.00
Sod, Seed, Topsoil, Planting	21,000.00
Footings - Concrete	51,750.00
Walls - Concrete	11,200.00
Slabs on Ground	176,000.00
Slabs on Forms	14,960.00
Litewate Concrete	11,730.00
Concrete Bases, Stairs, Curbs, Pits	16,320.00
Trowel Finish for A.T.	12,450.00
Concrete Walks & Curbs	39,000.00
Bituminous Paving	62,805.00
Brick	44,250.00
Concrete Masonry Units	52,900.00
SFTU	38,160.00
Rubble Stone	30,600.00
Clean & Point Masonry	3,340.00
Rough Carpentry	14,653.00
Marlite	9,512.00
Chalk & Tackboard	13,000.00
Millwork	80,000.00
Structural Steel	230,400.00
Steel Joist	82,420.00
Windows	150,486.00
Hollow Steel	6,000.00
Miscellaneous Metal	24,600.00
Steel Wall Panels	5,000.00
Roofing, Sheet Metal, Louvers	86,000.00
Metal Toilet Partitions	3,300.00
Weather Strip, Caulking	2,375.00
Plastering	42,000.00
Acoustical Tile	64,070.00

Gypsum Roof	$ 55,950.00
Asphalt Tile Floors	22,000.00
Wood Floors	16,800.00
Tile, Terrazzo, Accessories	86,500.00
Glass & Glazing	33,800.00
Painting	38,000.00
Folding Doors	850.00
Movable Metal Partitions	8,650.00
Folding Partitions	20,900.00
Venetian Blinds	5,200.00
Library Equipment	10,572.00
Overhead Doors	2,200.00
Aluminum Grille, Steel Roll Doors	3,800.00
Lockers, Shelving, Hangers	31,000.00
Homemaking Equipment	32,000.00
Vertical Jalousies	10,000.00
Safe	450.00
Basketball Backstops & Equipment	8,500.00
Greenhouse	985.00
Unistrut	600.00
Curtain Tracks & Curtains	378.00
Plumbing, Heating & Ventilating	750,000.00
Electrical	310,000.00
Hardware	36,000.00
Toilet Accessories	1,000.00
TOTAL	$3,158,000.00 *

Cost Breakdown

Building (and equipment in general contract)	$2,872,195.00 **
Site	85,100.00
Site Work (grading, cutting, filling, running track, paved play areas, parking lots, storm drainage, sewage, pump house, street and parking lot, lighting and floodlighting, landscaping entire site)	285,805.00 **
Equipment (loose equipment not in general contract and exclusive of television equipment)	150,000.00
TOTAL	$3,393,100.00

* This figure does not include change orders. The total after change orders was $3,157,777.49.

** From general contract.

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Here They Learn, first annual report

Ring the Alarm!, A Memo to the Schools on Fire
and Human Beings

Profiles of Significant Schools

Newton South High School, Newton, Massachusetts

Wayland Senior High School, Wayland, Massachusetts

Photographs by Fred J. Maroon
Architects' rendering, facing page 1.
page 7.,top and bottom
page 11.
page 13.